Amendments to the Specification:

Please replace paragraph [0020] on page 2 of the pre-grant publication with the following new paragraph:

In contrast with simple assays, cell-based assays are newer to the pharmaceutical industry. They are usually used for lead optimization and predictive toxicology. To construct a cell-based assay, a measurable cell characteristic has to be developed: this can be a fluorescent-tagged protein, an antibody based marker, or some measurable phenotypic characteristic of the cell. Modern examples include cancer-specific dyes (~~http://www.~~see url, zetiq.com/site/cama.html) and genetically engineered cell lines (Shen-Orr, S.S., Milo, R., Mangan, S., and Alon, U., *Network motifs in the transcriptional regulation network of Escherichia coli.* Nat Genet 2002, 31(1): 64-8; ~~http://www.~~see url, cellomics.com/).

Please replace paragraph [0115] on page 10 of the pre-grant publication with the following new paragraph:

There are numerous suppliers, catalogs and on-line resources that help in selection of fluorescent probes, FRET pairs, and attachment reagents. Some well known suppliers are Molecular probes (~~http://www.~~see url, probes.com/, handbook of fluorescent probes ~~http://www.~~url, probes.com/handbook/), Bio-Rad corporation (~~http://~~see url, fluorescence.bio-rad.com/) and Pierce (~~http://www.~~see url, piercenet.com/products/browse.cfm?fldID=1CC1AF24-9D9B-4D21-B850-688931CF7E3B).

Please replace paragraph [0216] on page 16 of the pre-grant publication with the following new paragraph:

A complete database of TRNA sequences can be found ~~in http://www.~~at url unibayreuth.de/departments/biochemie/trna/. A database of known RNA modifications can be found ~~in http://~~at url, medstat.med.utah.edu/RNAmods/, both of which are hereby incorporated by reference as if fully set forth herein.

Please replace paragraph [0276] on page 22 of the pre-grant publication with the following new paragraph:

FIG. 12 describes one optional but preferred embodiment for an exemplary optical apparatus for data acquisition, based on a wide-field microscope equipped with TIR illumination and intensified CCD camera. This setup is useful both for in-vitro single-molecule protein synthesis monitoring application, where the ribosomes are immobilized on the microscope slide, and for in-vivo PSM, where the ribosomes are monitored inside living bacteria or cells. Referring to **FIG. 12**, laser 600 is a diode-pumped doubled YAG laser (Crystalaser, Reno, Nev.) that can excite a wide range of dyes. Laser illumination 602 travels through a dichroic mirror 604 (Chroma Technology, Brattleboro, Vt.) and into a dove prism 606 such as a small Pellin Broca prism (CVI laser, ~~http://www.~~see url, cvilaser.com/) where the illumination undergoes TIR. The prism is optically coupled to the fused silica bottom of the sample chamber 608, so that evanescent waves illuminate up to 150 nm above the surface of the fused silica. The emitted fluorescence signals (both donor and acceptor fluorescence signals) pass through objective 610 (Olympus, DPLanApo 100 UV 1.3oil, or PLAPO60XO, Plan APO 60X oil immersion, NA=1.4 working distance=0.15 mm), through a fluorescent filter 612 (Chroma Technology, Brattleboro, Vt.) and imaging lens 614 into intensified ccd (ICCD) camera 618 such as Cascade:512B available from Roper Scientific Photometrics, a camera that has on-chip multiplication gain and a back-illuminated CCD with dual amplifiers. In this type of camera, the impact-ionization process generates low-noise as

multiplication of photon-generated charge takes place on the CCD, which undergoes deep thermoelectric cooling. This camera can be operated at 10 MHz for high-speed image visualization or more slowly for high-precision photometry. Supravideo frame rates are achievable through subregion readout. The camera readout is transferred digitally to computer system 620 for image analysis, signal processing and subsequent identification of the proteins being synthesized.